

IN THE CLAIMS

1(previously presented). A force generator for taking an input force and converting the input force phase and rotational dynamics, comprising:

5 a circular rotational force member and a proximal end plate and a distal end plate connected together by a plurality of elongated tubular shafts disposed parallel to one another forming a carrier cage having a longitudinal centerline,

the tubular shafts having a proximal end and a distal end, the proximal end of each shaft being fixed in the proximal end plate, the distal end of each shaft being fixed in the distal end plate,

10 a fixed longitudinal carrier shaft positioned along the longitudinal centerline of the carrier cage, the carrier cage being rotatably mounted to the carrier shaft,

the carrier shaft having a proximal end and a distal end, the proximal end of the carrier shaft being rotatively mounted in the proximal end plate and the distal end of the carrier shaft being rotatively mounted in the distal end plate,

15 at least one internal force generating unit mounted in the carrier cage for rotation around the carrier shaft,

the carrier cage being capable of rotational movement in response to a rotational force applied to the input member,

the internal force generating unit being mounted between the proximal mounting plate and the distal mounting plate, the mounting plates being affixed to the cage shafts and rotatable on the carrier shaft,

each internal force generating unit having a sun gear locked to the carrier shaft adjacent one of the mounting plates, first and second planet gears engaging the sun gear and respectively mounted in rotational relationship to one of the mounting plates, first and second crank throw units, a first crank throw unit mounted to the first planet gear and a second crank throw unit mounted to the second planet gear,

a third crank throw unit rotationally mounted to the other of said mounting plates and a fourth crank throw unit rotationally mounted to the other of said mounting plates,

an eccentric being mounted between the first and third crank throws being freely rotatable about a wrist pin interconnecting the first and second crank throws,

a second eccentric being mounted between the second and fourth crank throws and being freely rotatable about a wrist pin interconnecting the second and fourth crank throws, and

a timing mechanism connected to the carrier shaft to change the phase relationship between the carrier shaft and the carrier cage to angularly vary the resultant force output, the timing mechanism having a timing sequence handle rotatively mounted to the carrier shaft, a timing plate mounted to the carrier shaft, the timing sequence handle having an indexing mechanism, the timing

40 plate having a plurality of indexing areas being selectively juxtaposed to the indexing mechanism to change the angular position of the internal force generating unit.

2(original). A force generator as claimed in Claim 1, wherein multiple internal force generating units are mounted to the carrier cage.

3(original). A force generator as claimed in Claim 2, wherein the centerline of the carrier shaft and a centerline passing through each wrist pin of an individual force generating unit lie in a common plane.

4(original). A force generator as claimed in Claim 3, wherein the common planes of respective individual force generating units are offset 45 angular degrees from adjacent individual force generating units.

5(canceled).

6(original). A force generator as claimed in Claim 2, wherein the internal force generating units are juxtaposed end to end.

7(original). A force generator as claimed in Claim 3, wherein the internal force generating units are juxtaposed end to end.

8(original). A force generator as claimed in Claim 7, wherein there are four internal force generating units grouped in one set with the common place of each generating unit of the set being angularly disposed 45° with respect to the common place of any adjacent generating unit.

9(previously presented). A force generator as claimed in Claim 1, wherein the distal end plate has a peripheral edge and said edge has a plurality of gear teeth around the peripheral edge.